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10/669,178	09/23/2003	Farrokh Avazi	062020-1450	4090

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EXAMINER

TAKAOKA, DEAN O

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/669,178

Applicant(s)

AVAZI ET AL.

Examiner

Dean O Takaoka

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-16 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/12/04, 6/25/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statement filed March 12, 2004 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because reference F (S. Pourkamali et al., Single Crystal Silicon Filter Arrays) does not include a date.

It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 5, 6, 8, 9, 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Nguyen et al. (U.S. Patent No. 5,839,062), Applicant's prior art submitted in the IDS dated June 25, 2004.

Claim 1:

Nguyen et al. shows a filter arrangement (where the method is generic defining or defined by the final product, where the final product of Nguyen et al. is inherently made by and/or defined by the method) comprising providing a first MEMS resonator (100) and a second MEM resonator (102) adjacent to the first MEMS resonator (Fig. 8A); and electrically coupling the first and second MEMS resonator (via spring coupler 104).

Claim 2:

Further including electrically coupling additional resonators (Fig. 20A).

Claim 5:

Where electrical coupling includes providing an active component between the first and second MEMS resonators (70 in Fig. 10 or D1-Dn in Fig. 20A).

Claim 6:

Where the active component includes an amplifier (70 – Fig. 10 or Dx – Fig. 20A).

Claim 8:

A first a first MEMS resonator (100) and a second MEMS resonator (102) electrically coupled to the first MEMS resonator (via spring coupler 104).

Claim 9:

Further including additional MEMS resonators electrically coupled to each other (Fig. 20A).

Claim 12:

Where the first and second MEMS resonators are electrically coupled using an active component disposed between the first and second MEMS resonators (70 in Fig. 10 or D1-Dn in Fig. 20A).

Claim 13:

Where the active component includes an amplifier (70 – Fig. 10 or Dx – Fig. 20A).

Claims 1, 2, 4, 8, 9, 11, and 14 – 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Nguyen et al. (U.S. Patent No. 6,424,074).

Claim 1:

Nguyen et al. shows a filter arrangement (where the method is generic defining or defined by the final product, where the final product of Nguyen et al. is inherently made by and/or defined by the method) comprising providing a first MEMS resonator (18, resonator 1) and a second MEM resonator (18, resonator 2) adjacent to the first MEMS resonator (Fig. 5A); and electrically coupling the first and second MEMS resonator (via spring coupler 19).

Claim 2:

Further including electrically coupling additional resonators (Fig. 14 where a plurality of filters are shown).

Claim 4:

Where electrical coupling includes effecting a series capacitance between the first and second MEMS resonators (where spring coupler 19 is in series with resonators 18 and where the equivalent circuit is shown by capacitive coupling in Fig. 5b).

Claim 8:

A first a first MEMS resonator (100) and a second MEMS resonator (102) electrically coupled to the first MEMS resonator (via spring coupler 104).

Claim 9:

Further including additional MEMS resonators electrically coupled to each other (Fig. 20A).

Claim 11:

Where electrical coupling includes effecting a series capacitance between the first and second MEMS resonators (where spring coupler 19 is in series with resonators 18 and where the equivalent circuit is shown by capacitive coupling in Fig. 5b).

Claim 14:

A communications device comprising a receiver and a MEMS filter system disposed in the receiver (Fig. 9) comprising, a first and second MEMS resonator (both shown as 18 in Fig. 9 and Fig. 5a defining resonators 1 and 2).

Claim 15:

Further comprising a transmitter (Fig. 3 to antenna).

Claim 16:

Where the transmitter comprises a second MEMS filter system (any filters shown such as connected to power amplifier or ADC) comprising a third and fourth coupled MEMS resonators (where any second filter of the dual resonator filters in Fig. 3 would comprise third and fourth coupled resonators).

Claims 1, 2, 4, 8, 9, 11 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Zurn (U.S. Patent No. 6,621,134).

Claim 1:

Zurn shows a filter arrangement (where the method is generic defining or defined by the final product, where the final product of Zurn is inherently made by and/or defined the method) comprising providing a first MEMS resonator (252) and a second MEM resonator (258) adjacent to the first MEMS resonator (Fig. 14); and electrically coupling the first and second MEMS resonator (via spring coupler 256).

Claim 2:

Further including electrically coupling additional resonators (with respect to Fig. 1 where a plurality of filters are shown).

Claim 4:

Where electrical coupling includes effecting a series capacitance between the first and second MEMS resonators (where spring coupler 256 is in series with both resonators and where the equivalent circuit is shown by capacitive coupling in Fig. 16).

Claim 8:

A first a first MEMS resonator (252) and a second MEMS resonator (258) electrically coupled to the first MEMS resonator (via spring coupler 256).

Claim 9:

Further including additional MEMS resonators electrically coupled to each other (any additional filters 54, 62, 72 – Fig. 1).

Claim 11:

Where electrical coupling includes effecting a series capacitance between the first and second MEMS resonators (where spring coupler 256 is in series with both resonators and where the equivalent circuit is shown by capacitive coupling in Fig. 16).

Claim 14:

A communications device comprising a receiver and a MEMS filter system disposed in the receiver (col. 2, lines 1-38) comprising, a first and second MEMS resonator (both shown in Fig. 14).

Claims 1, 2, 4, 8, 9, 11, 14 – 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Thompson et al. (U.S. Patent No. 6,535,766).

Claim 1:

Thompson et al. shows a filter arrangement (where the method is generic defining or defined by the final product, where the final product of Thompson et al. is inherently made by and/or defined by the method) comprising providing a first MEMS resonator (58, resonator 1) and a second MEM resonator (60, resonator 2) adjacent to



the first MEMS resonator (Fig. 5a); and electrically coupling the first and second MEMS resonator (via spring coupler 56).

Claim 2:

Further including electrically coupling additional resonators (406, 412, 416 et al. – Fig. 4 where a plurality of MEMS filters are shown).

Claim 4:

Where electrical coupling includes effecting a series capacitance between the first and second MEMS resonators (where spring coupler 56 is in series with resonators 58 and 60 and where the equivalent circuit is shown by capacitive coupling in Fig. 5b).

Claim 8:

A first a first MEMS resonator (100) and a second MEMS resonator (102) electrically coupled to the first MEMS resonator (via spring coupler 104).

Claim 9:

Further including additional MEMS resonators electrically coupled to each other (Fig. 20A).

Claim 11:

Where electrical coupling includes effecting a series capacitance between the first and second MEMS resonators (where spring coupler 19 is in series with resonators 18 and where the equivalent circuit is shown by capacitive coupling in Fig. 5b).

Claim 14:

A communications device comprising a receiver and a MEMS filter system disposed in the receiver (Fig. 4) comprising, a first and second MEMS resonator (both shown in Fig. 5a).

Claim 15:

Further comprising a transmitter (Fig. 4 to antenna).

Claim 16:

Where the transmitter comprises a second MEMS filter system (438) comprising a third and fourth coupled MEMS resonators (where any second filter of the dual resonator filters in Fig. 4 would comprise third and fourth coupled resonators).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zurn (U.S. Patent No. 6,621,134) or Thompson et al. (U.S. Patent No. 6,535,766) in view of Johnson (U.S. Patent No. 3,858,127).

Zurn and Thompson et al. show the filter system comprising first and second MEMS resonators, discussed in the reasons for rejection of claims 1 and 8 above but do not show where the first and second MEMS resonators are electrically coupled with a shunt capacitor to ground disposed between the first and second MEMS resonators.

Johnson shows a similar coupled resonator filter comprising first and second resonators where the first and second resonators are electrically coupled with a shunt capacitor to ground (80) disposed between the first and second resonators (Fig. 8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the resonator filter disclosed by Zurn or Thompson et al. with the capacitor disclosed by Johnson. Such a modification would have been obvious where Zurn, Thompson et al., and Johnson all show similar dual or multi-resonator coupled filters; where the shunt connected capacitor of Johnson provides the advantageous benefit of providing bandwidth adjustment of the filter (col. 5, lines 23-24); where Zurn (Fig. 16) and Thompson et al. (Fig. 5b) both show equivalent circuits comprising a shunt capacitance connected to ground; thus suggesting the obviousness of the modification.

#### ***Allowable Subject Matter***

Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dean O Takaoka whose telephone number is (571) 272-1772. The examiner can normally be reached on 8:30a - 5:00p Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "R. Pascal", is written above the date.

dot  
January 5, 2005